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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/057,506	01/23/2002	Stephen T. Wellinghoff	SWRI-2835-03	4321
23770	7590	09/07/2005	EXAMINER	
PAULA D. MORRIS THE MORRIS LAW FIRM, P.C. 10260 WESTHEIMER, SUITE 360 HOUSTON, TX 77042-3110			WU, SHEAN CHIU	
			ART UNIT	PAPER NUMBER
			1756	

DATE MAILED: 09/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/057,506	WELLINGHOFF ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Shean C. Wu	1756	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 05 April 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 105-108, 126 and 142-180 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 105-108, 126 and 142-180 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>1/25, 2/1, 4/5, 7/29/05</u> | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

1. Claim 105-108, 126 and 142-180 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In Claim 105, the notations “X” and “Y” are vague because first they comprise hydroxyl groups (below the formula) and then at the end of the claim are defined as “a terminal group comprising a polymerizable group”. According to the definition in the specification, X and Y are selected from the group consisting of terminal functionalities and polymerizable groups. In platform molecules, X and Y are terminal functionalities. In polymerizable mesogens, X and/or Y are polymerizable groups (see page 4, line 20 to page 5, line 3). Terminal functionalities are defined as protective groups and precursors to polymerizable groups, which generally comprise functionalities that readily react with polymerizable groups to form reactive ends. Most preferred terminal functionalities are hydroxyl groups (see page 5, line 20 to page 6, line 8). The polymerizable groups are defined as groups that are polymerized by nucleophilic addition, free radical polymerization, or a combination thereof. More preferred polymerizable groups include cinnamoyloxy groups, acryloyloxy groups, methacryloyloxy groups (see page 7, lines 2-10). Because asymmetry suppresses crystallinity while maintaining a nematic state, it is preferred for X and Y to be different groups. The claimed “randomly substituted mesogens” should be clearly defined because X and Y are polymerizable groups in Claims 106-108.

Claim 126 differ from Claim 105 in that the notations X and Y are spacer groups.

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Claim 161, the "independently reacting" is not clearly defined.

What are "substituted mesogens"? Are they a mixture of platform molecules (mesogens), polymerizable mesogens or combinations of platform molecules and Polymerizable mesogens? All these issues should be clearly addressed in the claims.

### ***Response to Arguments***

2. Applicant's arguments filed 4/5/05, with respect to the rejections of claims in the previous Office Action have been fully considered and are persuasive. Therefore, the rejections have been withdrawn. However, upon further consideration, new grounds of rejection are made in section 1 above.

### ***Conclusion***

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The reference (US 5,676,879) discloses a molecularly oriented synthetic resin composition as comprising a polymerizable liquid crystal (Figure 1, R=H or CH<sub>3</sub>) having thermal shrinkage or expansion is very small over a large temperature range. If the claimed blend comprising the polymerizable mesogens only then the reference will anticipate the claimed invention (formula in Fig 1 with R=H and CH<sub>3</sub>, see col. 2, lines 50-64).

### ***Specification***

4. The disclosure is objected to because of the following informalities:

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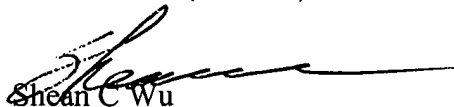
It is noted that the figures on page 25 in the specification should be deleted or modified because they are not labeled as figures.

Appropriate correction is required.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shean C. Wu whose telephone number is 571-272-1393. The examiner can normally be reached on 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Shean C Wu  
Primary Examiner  
Art Unit 1756

scw